Space Weather Forecast

Issued on Friday, 23 August 2024 at 00:15 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Further Minor to Moderate flares likely, slight chance of isolated Strong flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Moderate, with one Moderate-class flare recorded in the last 24 hours, the peak flare from a large active region in the southeast at 22/1039UTC.

There are currently ten regions on the visible disc. A large and moderately magnetically complex bipolar region now west of centre disc in the south has shown some consolidation and growth in its lead and trailer portions, with similar evolution for a further large moderately magnetically complex bipolar region in the southeast representing the bulk of the flare risk. Another bipolar region of interest is located toward the east limb has shown further growth, with a trend toward increased magnetic complexity. The other sunspot regions are comparatively smaller or less complex, and either stable or in slight decay.

Any potential CME (Coronal Mass Ejection) glancing influence is now considered to have passed, with no other Earth directed CMEs evident in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind was at background levels but with a gradual rising trend. The Interplanetary Magnetic Field, Bt, was mostly weak but became occasionally moderate in the UTC afternoon. The important north-south component, Bz, varied weakly was often southward orientated during the first half of the period, then often northward in the second half of the period. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Further Moderate-class flares are likely during the period with a slight chance of isolated Strong flares.

Solar Wind /Geomagnetic Activity: Any potential CME (Coronal Mass Ejection) glancing influence is now considered to have passed, with no other Earth directed CMEs evident in available imagery.

Background solar winds have shown a gradual upward trend through the period, which may indicate some weak HSS (High Speed Stream) influence. Further potential HSS influence from coronal holes CH60/+ and CH61/+ are likely into Day 1 (23 Aug) and perhaps lingering into Day 2 (24 Aug). Solar winds may increase further towards slightly elevated or possibly elevated levels, 400-500km/s, with any HSS influence then expected to wane thereafter.

Geomagnetic conditions are expected to be largely Quiet to Unsettled (Kp 1-3), but with a slight

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chance of isolated Active to G1/minor storm intervals (Kp 4-5) intervals on Day 1 and 2 (23 and 24 Aug), should we see any more significant coronal hole influence.

Energetic Particles / Solar Radiation: Solar radiation is likely to persist at background levels, however there is a chance of exceeding the S1/Minor solar radiation storm level should any notable flares occur.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	15	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	70	70
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	20	20	20	20
Very Active	≥ S3 *	No	5	5	5	5

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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